

Washington State On-Site Wastewater Technical Review Committee

Final Minutes for the
February 18, 2004 Meeting

Approved on April 22, 2004 by Vote of the Committee



*For additional information, contact Larry Kirchner, TRC Coordinator, at
253-395-6754 or by email at Larry.Kirchner@doh.wa.gov*

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MEETING ATTENDEES

Members Present

Kevin Barry, Klickitat Co. Health Dept
John Stormon, WA Dept of Ecology
Keith Grellner, Kitsap Co. Health Dept
Scott Jones, Scott Jones & Assoc
Eric Knopf, Indigo Design, Inc.
Bill Peacock, Spokane Sewer Utility District

Members Absent

Glenn Herriman, Century 21/Herimann Speedy Tank Svc
Pam Denton, Mason Co. Health Dept

Guests Who Signed In

David Allan, Multi-Flo
Tom Teal, Glendon BioFilters
Jim Patterson, Five Star
Jim Wiley, Hancor
Blake Johnston, Infiltrator
Scott Champlin, Ring-EZ Flow
Peter Lombardi, Orenco Systems
Ed Hunter, Advanced Drainage Systems
Stephen Wecker

DOH Staff

Mark Soltman, Wastewater Program Supervisor
Larry Kirchner, Incoming TRC Coordinator
John Eliasson, Wastewater Program Staff
Selden Hall, Wastewater Program Staff

INTRODUCTION:

Chairman Kevin Barry called the one-day meeting to order at approximately 10:10 AM on February 18, 2004 in the conference room of the BEST Inn, Ellensburg, Washington. The meeting began with brief introductions by each committee member and a welcoming of the Committee's new member, John Stormon, who is replacing Kathleen Emmett as the Department of Ecology representative. In addition, Kevin Barry announced that John Wolpers, Environmental Health Director at Kittitas County, had been selected as Kevin's replacement when his term expires at the end of June 2004.

PLANNING/ADMINISTRATIVE ISSUES:

Approval of June 10-11 TRC Meeting Minutes:

Due to lack of a quorum at the December 11, 2003 meeting, these previous minutes could not be approved and were carried forward to this meeting. By a vote of 5 in favor, none opposed, the Chair abstaining, the minutes were APPROVED, as written.

Approval of December 10-11 TRC Meeting Minutes:

With the noted correction of a spelling error on page 5 (from, not form), the minutes were APPROVED by a vote of 5 in favor, none opposed, the Chair abstaining.

Aerobic Treatment RS&G Inquiry:

Mark Soltman advised the TRC members that David Allan had raised a question about the ATU RS&G, questioning why the requirement for positive filtration had been taken out of the RS&G. Allan provided a handout of his concerns for the TRC to review prior to the next meeting (copy included in meeting binder). Since this is an issue of importance to all of the ATU industry members, Mark felt it best to advise the TRC of the concern and leave the topic for next meeting so that the ATU industry could fully participate in the discussion.

Future Meeting Dates:

The next meeting date was set for April 21-22, 2004.

A meeting date of June 9-10, 2004 was also established.

The meetings will tentatively be held at the BEST Inn in Ellensburg unless there is a conflict with the availability of the facility.

SUMMARY OF TECHNICAL DISCUSSIONS

Risk Based Monitoring Approach – Critical Point Monitoring

John Eliasson began his presentation by providing TRC members and audience a copy of *Sewage Strategies*, a two page article that had been published in Resource Magazine (ASAE) in March, 2001. This article is a summarized version of the *Critical Point Monitoring – A New Framework for Monitoring On-site Wastewater Systems*, which had been already provided to TRC members. Copies of both documents, as well as copies of his PowerPoint slides, are included in the meeting binder.

John explained that the discussion of a risk-based monitoring framework is important in looking at upcoming topics dealing with single sample or limited sample results of septic tank effluent (STE) or treatment systems in the field. It's important, too, if DOH is to develop a monitoring document for use by LHDs or the wastewater industry.

TRC members generally liked the idea of incorporating critical point monitoring (CPM) into the process of operation and maintenance. Erik Knopf pointed out that homeowners do the operating of their system and monitoring needs to be done by maintenance professionals.

A discussion ensued about the use of threshold values (TVs). John also characterized these as critical limits. Scott Jones expressed concern that some would perceive that the establishment of threshold values would be a basis for enforcement action. In other words, if CPM were instituted and as a result of monitoring it was found that threshold values were exceeded, would regulators then pursue enforcement action? The group consensus was that the objective of a monitoring program was to inform homeowners so they could make informed decisions. Bill Peacock thought it important to be able to show homeowners the benefit of a monitoring program to assure future behavior consistent with good operating practices.

Scott Jones suggested that the Vulnerability and Susceptibility Assessment done by Mark and John should be incorporated with CPM to develop a monitoring tool. He suggested that key features from RS&Gs could be pulled into the document.

The discussion closed on this topic with an affirmation of the importance of a monitoring program and that CPM seemed to be a logical approach to incorporate.

Residential Septic Tank Effluent:

John Eliasson led the discussion. TRC members had already been provided with a copy of his research document. A copy of both the research paper and the PowerPoint presentation are included in the meeting binder.

This project was requested by the RDC for inclusion in the revised regulations in order to provide guidance on what single sample threshold values could be used to differentiate residential septic tank effluent (STE) from high strength wastewater.

John discussed the parameters that the TRC had requested-CBOD₅, TSS, FOG and pH. He explained that the research is limited on CBOD₅ and the correlation between CBOD₅ and BOD₅ isn't accurate so he recommends that if a single sample parameter is set, that it be in BOD₅. John also pointed out that FOG is now known as Oil & Grease.

The difficulty in setting single sample threshold values was pointed out by John and discussed thoroughly by the TRC. A recurring theme in the research paper and in John's presentation was the importance of considering more than just the single sample results of testing. More importantly, for example, is the Organic Mass Loading Rate (OLR), which is calculated based on the hydraulic loading and the organic concentration in the waste product.

John outlined the Threshold Values based on his research. They are:

BOD₅ : < 220 mg/L
TSS: <100 mg/L
O&G: <30 mg/L
pH: > 6.0 but < 9.0

Steve Wecker questioned using 9.0 as an upper limit on pH. He felt that the upper limit was too high and if pH reaches that level it is a sign of a serious problem. John pointed out that NSF allows pH up to 9.0 in its testing. Having a Threshold Value below 9.0 could create a conflict with NSF testing.

Eric pointed out that other factors need to be considered—single samples in the field differ from lab testing. His experience with sampling shows BOD₅ values significantly higher than the threshold value proposed here. Where and how the sample is taken can have a significant impact on the BOD₅. Eric expressed concern about how TVs would be used. If these were placed in code people would look at those numbers as a maximum rather than as an indicator. Kevin Barry thought that single samples are meaningless without putting them into a larger context.

Mark Soltman reminded the TRC about the RDC request for TVs. How would single samples be used? What is their value? These TVs would be part of the definition of STE.

Eric reiterated his concern about how attorneys would view and use these TVs if they were in rule. Bill Peacock wondered if one parameter exceeding the limit would be a “trigger” for action or if second TV greater than the standard would be that “trigger”. Kevin expressed his concern in terms of “levels of fright”. For instance, an O&G >30 mg/L or pH below 6.0 or above 9.0 would be of more concern to him than a BOD₅ that is elevated. He felt that BOD₅ needed a “softer” limit.

Bill had questions about OLR; he was concerned that John's OLR figures in the report were using long-term loading rates but being applied to single sample results.

Keith Grellner felt that the numbers may be helpful for understanding the functional status of the system, but he questions the development and use of such numbers when there are no established sample protocols and being used since there is such a wide variation in sampling techniques. (*Amendment as moved by Keith Grellner and approved by TRC at April 22, 2004 meeting.*)

Jim Patterson expressed discomfort with the TRC coming up with TVs in the short discussion held today. He would like greater discussion since the RDC is still in process. Mark pointed out that the RDC process is completed. In addition the TV for field monitoring of treatment systems is coming up next meeting. If TRC gave recommendation(s) they would go into the draft rule and then be up for discussion as the WAC is reviewed.

Scott Jones asked what would happen if TRC didn't recommend values? Mark responded that would be reported back and a change in the definition of STE in the code would be needed. Mark then read the WAC (draft) definition of residential effluent.

Motion:

Scott Jones, seconded by Eric Knopf, made a motion that the TRC not send single sample TVs to DOH for inclusion in WAC. Single samples should be used for monitoring guidance instead. The vote was five in favor, none opposed, the Chair not voting.

Treatment Level E: John presented, both in his slides and the research paper his recommendation that the draft rule CBOD₅ 30-day average threshold value of 200 mg/L (approximately 240 mg/L BOD₅) be reduced to 150 mg/L BOD₅ (approximately 125 mg/L CBOD₅) because otherwise the resulting mass organic loading rate would result in a loading rate of approximately 2.0×10^{-3} lbs of BOD₅/ft²/day which is substantially higher than what the literature would suggest.

Motion:

Eric Knopf, seconded by Scott Jones, made a motion that the TRC recommends that DOH adjust Treatment Level E CBOD₅ values to 150 mg/L BOD₅ (or approximately 125 mg/L CBOD₅). The vote was five in favor, none opposed, the Chair not voting.

John Eliasson thanked the TRC for their discussion and reminded them that they will be discussing limited sampling of treatment systems at the next meeting. Many of the same issues will appear.

The Chair, in the interest of time, called the discussion to an end and moved to the next topic.

Use of Beds in Soil Types 1-6:

Selden Hall led the discussion. TRC members had already been provided with a copy of his research document. A copy of both the research paper and the PowerPoint presentation are included in the meeting binder.

The first reference to the use of beds that Selden could find was in the 1983 WAC. Soil properties and moisture status are main issues affecting the use of beds. Kevin pointed out that 10' wide beds came from use of sand filters and is based on linear loading. The current requirement for 20' between beds is based more on construction, although aeration is important, too.

According to Selden's research, many factors inhibit the use of beds in finer textured soils. The ability to provide aeration to the center of the bed is essential for long-term operation and is enhanced by large pore spaces and low moisture content. However, these conditions are limited or don't exist in finer textured soils.

Selden discussed the design characteristics that could be used to potentially overcome the obstacles of beds in soil types 4-6. For example, maximizing vertical separation, minimizing organic loading, restricting the linear loading rate and the BOD linear loading rate of the site.

Scott Jones wondered if Effluent Quality Based DF design could be used for any new system wanting to use wide beds. He followed up that thought with a comment that he thought 10 foot wide beds could be designed in soil types 4-6 but would the industry be willing to go through the steps required?

Mark explained the context of the RDC request, options for the TRC (e.g.; leave as-is, expand use of beds, etc.). Mark suggested that it might be a good topic for development of a guidance document.

Selden presented a PowerPoint Slide that had the following decision points:

1. Should current limitations to use of beds be eliminated?
2. Should current limitations to use of beds be retained in rule?
3. Should limitation to use of beds be modified in Rule?

Motion:

A motion was made by Scott Jones, seconded by Eric Knopf, to retain the current requirements in the draft rule- only in soil types 1-3. The motion was passed by a vote of four in favor (Jones, Knopf, Grellner, Stormon) and two opposed (Barry, Peacock)

Upflow Media Filters Proposed RS&G –

The discussion was led by Selden Hall. See the December 2003 meeting minutes for background and prior discussion. Selden had provided copies to TRC members and guests at the last meeting and had asked for any comments/suggestions. None have been received. Selden, at this point, is asking for TRC recommendation for approval.

Selden reiterated that this RS&G is modeled after the Packed Bed Filter RS&G. It is essentially a “find and replace” document that will be useful as an evaluative tool for proprietary products that fall into this category of treatment system. Selden noted that the intent of this RS&G is not for developing a generic non-proprietary upflow filter, and that it does not provide specifications about how to build a “generic” unit.

The issue of sampling ports (Section 2.11-pg 13) was brought up. Sampling ports may not be possible on some types of UMFs, e.g. Glendon BioFilters. Selden pointed out that this issue was mentioned in the Introduction but not in the specific section. He agreed that it would be a good idea to include discussion in 2.11 and that he would do this.

David Allan questioned the feasibility of leak testing of vault units and wondered if wording should be included. Tom Teal responded that the Glendon units can easily be tested for leakage via sampling ports. Erik stressed importance of watertight units and recommended that it be part of O&M standards (Section 4). Selden agreed that this could easily be added.

Tom Teal had a question about the last line of Section 2.1.1 on page 9 which states: “System performance shall be considered outside the limits established in the Treatment Standards if any 30-day average or geometric mean values during performance testing equals or exceeds the parameter performance limitations of the Treatment Standards.” Mr. Teal thought the term “equals or” should be deleted. Selden said he would take another look at that wording and how it fits with the overall context of the Treatment Standards. If it made sense, he would change the wording in the final document.

Motion:

Eric Knopf, seconded by Scott Jones made a motion to accept the Upflow Media Filter RS&G with the changes as discussed. The motion was passed by a vote of six in favor, none opposed.

Note: In addition to the changes discussed by the TRC, DOH is considering some additional language in this document, the ATU RS&G and the Packed Bed Filter RS&G regarding the protocol for fecal coliforms in TS1 and TS2 systems. There is some language in the draft rule that is being considered for all three documents. This may or may not need to come back to the TRC.

Glendon BioFilter Experimental System Testing Protocol –

Mark, as an introduction to the topic, explained the background on requirements for testing, including the TRC recommendation for testing per NSF Standard 40. At the December TRC meeting the TRC vote reaffirmed that the testing by Glendon BioFilters for their M32 model did not meet NSF Standard 40.

John Eliasson then provided the following question to the TRC:

“Is the testing protocol used satisfactory for providing sufficient and valid performance data for the purpose of approving the system for TS 1 listing without disinfection?”

John outlined the three significant issues/concerns that need to be resolved prior to acceptance and listing of the M32:

- Number of Data Days
- Influent Characteristics
- Stress Testing

He redisplayed the sampling discrepancies between NSF and Glendon sampling that had been presented previously

	<u>Glendon Protocol</u>	<u>NSF Std. 40</u>
<u>Sampling Frequency</u>	2/week	5/week
<u>Duration</u>	302 days (43 weeks)	182 days (26 weeks)
<u>Effluent Data days</u>	48 days	96 days
<u>Influent Data days</u>	39 days	96 days

A copy of the PowerPoint presentation (three slides) is included in the meeting binder.

Tom Teal spoke to the TRC. He explained that he, and Glen Helm, who had been at the December TRC meeting must not have understood the TRC direction when he sent in the additional information (see

Glendon materials in meeting materials). He acknowledged that there are differences in model design although testing results are very similar. He questioned the hard line on testing regimens since such a wide variety abound. Need to have “real world” testing-not NSF testing-in order to have meaningful results that can be applied in the field.

Scott felt that it was clear that NSF Standard 40 testing was not followed but sample results are comparable. He doesn’t think that design changes are significant. Kevin Barry disagreed.

Tom Teal responded to the TRC that if the M32 were a “black box” then NSF testing would not be appropriate; that ETV protocols are less stringent. He feels that somewhere between NSF 40 and ETV is more realistic. However, realistic operational testing is most important.

Note: Although Tom Teal mentioned ETV, it's application isn't really pertinent to the M32 testing since ETV is for any size commercial wastewater system but for residential it is only for 1500 gpd and above.

Motion:

A motion was made by Scott Jones and seconded by Eric Knopf. The motion was that the treatment process and design parameters of the M32 are not sufficiently different to warrant the requirement for NSF Standard 40 testing.

Discussion of the motion:

Scott did not think the “spirit of the design” had changed. John Eliasson reminded Scott that this is a proprietary device and the TRC hasn't seen the engineering so he wondered about Scott's engineering review of the product. John believes approval needs to be based on more than limited testing by Glendon BioFilters.

Mark reminded the TRC that the Glendon issue isn't that the product isn't different; Tom Teal has acknowledged that it is different. The issue is what further testing is needed.

Kevin Barry reflected on the past history of the TRC, that they had settled on holding to NSF Standard 40. Past decisions where the TRC has wavered in their decision-making still bother him and his advice to future TRC chairs is to not let that happen.

Eric thought the motion was defensible for DOH since Glendon has a history, even though different configurations than M3 and M31. Real world application in testing was provided. John responded that DOH, not TRC, would have to respond to other industry representatives and LHDs about why limited testing, less than NSF 40, was used for decision.

Bill Peacock has no way to know that the models/testing are the same. He wondered why testing protocols were not approved by the TRC prior to actual testing.

Mark Soltman provided some background. Perhaps unfortunately, NSF is the only place where there is a national standard for testing domestic strength wastewater treatment devices. There was no guidance document for Upflow Media Filters when this product was proposed. Under experimental requirements, products come to DOH/TRC for approval of the proposed testing protocol. This product was tested without coming to the TRC. Mark suggested that since this product was proposed prior to having a guidance document that it falls somewhere between NSF and the testing that Glendon has done already, that DOH and Glendon get together prior to the next meeting and work out a proposed testing protocol for additional testing. It won't be NSF 40 but it will be closer to that than the current data.

Mark asked Tom Teal if the thickness of filter materials in the tank had changed. Tom acknowledged that they had. Mark also asked if the retention times vary in the different layers and Tom also acknowledged this to be so.

At this point, the question was called and the committee voted. The motion failed on a vote of 3 opposed (Barry, Peacock, Stormon), 2 in favor (Jones, Knopf) and one abstention (Grellner).

Next Steps: DOH and Glendon will meet and agree on a revised testing process that will come back to the TRC for approval.

Tom Teal advised the TRC that he might choose to not test this product in Washington.

The Chair closed the discussion on this topic.

Gravelless Drainfields RS&G – Sizing Reductions –.

Mark Soltman walked the TRC through the marked-up version of the RS&G that had been emailed to them. In addition, the TRC had received a memorandum dated February 11, 2004 from Larry Kirchner outlining the proposed changes in the RS&G. The TRC members and guests were also provided with a copy of a letter from Dick Batchelder of Advanced Drainage Systems (PSA, Inc) dated February 15, 2004.

- Two firms have requested placement in the gravelless proprietary products listing but we need to have a category inserted into the RS&G. The two firms are Eljen and PTI (Multi-pipe). Eljen is a geocomposite application and PTI's product is a multiple pipe application.
- Page 5 contains the specifications for the multiple pipe application and page 7 contains the geocomposite specifications. Both of these types had been in the earlier version of the draft RS&G but were in text boxes rather than incorporated into the text of the document. Drawings for these two types of systems haven't been added to the document but will be before the document goes out for further review.
- Proposed language regarding void volumes is shown in Section 1.2.2 and reflects the language suggested by Infiltrator, Inc. at the December 2003 TRC meeting. Infiltrator, Inc. also proposed wording regarding the infiltrative surface at the December 2003 meeting and that wording is contained in Section 3.5.1. This wording would require that actual exterior width of products must measure at least 90% of the trench or bed width. Mark pointed out that this could be construed as a 10% reduction in drainfield area.
- Section 3.5.2 on page 13 contains new wording extending drainfield sizing reductions to certain types of gravelless systems.
- Section 3.5.3 adds wording that prohibits combining size reductions for using gravelless products with sizing reductions from effluent quality.
- Pages 15 and 19 are proposed for deletion as outdated and unnecessary.

Mark pointed out that no decision is expected from the TRC today. At this point he would like comments from the TRC. A revised version will be out in the next few weeks for review and comment by the industry and the topic would come back to the TRC for review at the next meeting after industry has been notified and given a chance to attend the meeting.

Eric expressed his dislike for reduced sizing because it can create problems later on if the system fails and the homeowner then has to dig up his/her landscape and incorporate additional drainfield footage that could have been added easily at initial construction.

In response, Scott Champlin, EZ Flow, suggested that the DOH could adopt EPA standards requiring 1.5 times the peak daily waste load. This could be a way to judge the capacity of a product to withstand variations in waste volumes.

In response to a question about why reductions are being allowed, when taken in the context of reductions being inconsistent with the previous loading rate discussion, Blake Johnstone of Infiltrator, Inc. responded that the reductions were based on gravel volume but perhaps sizing should be looked at in terms of the loading rate.

Keith Grellner pointed out that Kitsap County does not allow reductions unless the designer via a waiver request requests them.

Eric expressed concern about Section 3.4-Drainfield Depth. It's based on gravel systems but he thinks gravelless systems should be in original soil.

Ed Hunter, ADS, wanted to acknowledge that the TRC had received the letter from ADS's Dick Batchelder. Even though the letter is opposed to 3rd party testing, he wanted the TRC to know that ADS could go along with it but he thinks having the additional time until the next TRC meeting will be helpful in their firm having a chance to fully analyze the RS&G.

The Chair called the discussion regarding Gravelless Drainfields closed.

At the request of James Patterson, two documents were handed out to TRC members and DOH staff. Patterson asked that TRC members look at these documents prior to the next meeting. The two documents are included in the list of meeting materials and copies are provided in the meeting TRC binder.

Kevin Barry adjourned the meeting at approximately 5:00 PM.

LIST OF MEETING MATERIALS

Risk-Based Monitoring Approach-Critical Point Monitoring

- "Critical Point Monitoring- A New Framework for Monitoring On-site Wastewater Systems", Lenning, Dave and Eliasson, John
- "Sewage Strategies-Critical Point Monitoring provides framework for on-site systems", Eliasson, John
- PowerPoint Slides (36 slides)

Residential Septic Tank Effluent

- RDC Issue Research Report-Septic Tank Effluent Values
- PowerPoint Slides (6 slides)

Use of Beds in Soil Types 1-6

- RDC Issue Research Report-Dispersal Component: Beds
- PowerPoint Slides (23 slides)

Upflow Media Filters Proposed RS&G –

- Proprietary Upflow Media Filters (Draft RS&G)

Glendon BioFilters Experimental System Testing Protocol –

- Email from Larry Kirchner to TRC Members, Feb 11, 2004 with attachments from Tom Teal of Glendon BioFilters (letter dated February 2, 2004 and Excel Spreadsheet with Comparison of M31 & M32 Features, Test Results and Analysis.

- PowerPoint Slides (3 slides)

Gravelless Drainfield RS&G Revision

- Gravelless Drainfield RS&G (Draft)
- Memo to TRC members from Larry Kirchner dated February 9, 2004
- Memo to Interested Parties from Larry Kirchner dated February 11, 2004
- Letter from Dick Batchelder of PSA, Inc dated February 13, 2004

Other:

Handouts from Jim Patterson, Five Star

- “The Questionable Listing of the UV “Disinfecter™” on the Washington Department of Health List of Approved Systems meeting Treatment Standard 1 & 2 based on Alleged NSF “Testing”, January 10, 2004
- Field Performance Failures of Onsite Sewage Systems Employing Activated Sludge Pre-Treatment Devices -Whitewater™ - FAST™ – Multiflow™ – Norweco™, November, 2003

Handout from David Allan regarding Positive Filtration for ATUs, 3 pp.